UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,432	07/23/2003	Birgie Kuo	24061.100	7931

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EXAMINER
KOSOWSKI, ALEXANDER J

ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/625,432	KUO, BIRGIE
	Examiner	Art Unit
	Alexander J Kosowski	2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _23 July 2003_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _23 July 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _1/29/04_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1)   Claims 1-20 are presented for examination.

Claim Rejections - 35 USC § 112

2)   Claims 1, 11 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are the means to perform the method steps, means for executing the groups of instructions, and means for executing the software programs (i.e. a computer). As currently claimed, Claims 1 and 11 could be performed using a pencil and paper or in the mind of a user, which is not how the invention is taught in the specification. In addition, claim 19 is directed towards a software program, but there is no mention of an element to run the software program on. Claims 2-10, 12-18 and 20 inherit the above rejection through dependency.

3)   Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Referring to claim 14, it is not clear to the Examiner how an "electron beam entity" can "provide information used in creating the masks".

4)   Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Referring to claim 17, it is unclear to the Examiner how a "lithographic mask" can also be a "group of data".

Claim Rejections - 35 USC § 102

5)   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6)   Claims 1-2, 5-6, 10-14, 16-17 and 19 are rejected under 35 U.S.C. 102(b) as being

unpatentable by Wiesler et al (U.S. PGPUB 2001/0047222).

Referring to claim 1, Wiesler teaches a method for tracking and managing a plurality of

lithographic masks through a semiconductor manufacturing environment, the method

comprising: establishing a virtual fab with a plurality of entities, each entity associated with an

internal process to a semiconductor fab (Paragraphs 0015-0017); defining a state diagram for

tracking the plurality of lithographic masks through the plurality of entities of the virtual fab

(Paragraphs 0017 and 0021); placing each of the plurality of lithographic masks at a pre-

determined state of the state diagram and determining a future location for each of the masks in

the virtual fab via the state diagram (Paragraphs 0021, 0023-0024 and 0035-0036).

Referring to claim 2, Wiesler teaches the method of claim 1, wherein at least one of the

lithographic masks is a physical mask reticle (Paragraph 0006).

Referring to claim 5, Wiesler teaches the method of claim 1, wherein at least one of the

entities is a manufacturing team interface for communicating with personnel associated with the

semiconductor fab (Paragraph 0021).

Referring to claim 6, Wiesler teaches the method of claim 1, wherein at least one of the

entities represents a specific process used within the semiconductor fab (Paragraph 0015).

Referring to claim 10, Wiesler teaches the method of claim 1, wherein the virtual fab comprises a plurality of processes of the semiconductor fab (Paragraph 0015).

Referring to claim 11, Wiesler teaches a system for tracking and managing a plurality of lithographic masks through a semiconductor manufacturing environment, the system comprising: a first group of instructions for establishing a virtual fab having a plurality of entities (Paragraphs 0015-0017); a second group of instructions for establishing an enterprise mask management system (Paragraph 0017), a third group of instructions for establishing a plurality of state diagrams, the state diagrams having a plurality of states corresponding to the entities of the virtual fab (Paragraphs 0015, 0017 and 0021), and the progression through the states being controlled by the enterprise mask management system (Paragraph 0017); and one or more memories for storing the first or second group of instructions (Paragraph 0021, whereby the system is implemented on a computer which inherently contains memory).

Referring to claim 12, Wiesler teaches the system of claim 11 further comprising: one or more processors for interfacing with the one or more memories and executing the first, second, and third groups of instructions (Paragraphs 0018 and 0021, whereby the system is implemented on a computer).

Referring to claim 13, Wiesler teaches the system of claim 11, wherein the enterprise mask management system comprises a central entity for managing the progression of states via the state diagram (Paragraph 0017).

Referring to claim 14, Wiesler teaches the system of claim 11, wherein the enterprise mask management system comprises an electron beam operation entity for providing information

used in creating the masks (Paragraph 0015, whereby a process station may contain an electron

beam operation entity).

Referring to claim 16, Wiesler teaches the system of claim 11, wherein at least one of the

lithographic masks is a physical mask reticle (Paragraph 0006).

Referring to claim 17, Wiesler teaches the system of claim 11, wherein at least one of the

lithographic masks is a group of data (Paragraph 0023).

Referring to claim 19, Wiesler teaches a software program comprising: instructions for

establishing a virtual fab with a plurality of entities, each entity associated with an internal

process to a semiconductor fab (Paragraphs 0015-0017); a state diagram for tracking the plurality

of lithographic masks through the plurality of entities of the virtual fab (Paragraphs 0017 and

0021); a communications interface for placing each of the plurality of lithographic masks at a

pre-determined state of the state diagram (Paragraph 0017 and 0023); and instructions for

determining a future location for each of the mask in the virtual fab via the state diagram

(Paragraphs 0021, 0023-0024 and 0035-0036).

Claim Rejections - 35 USC § 103

7)   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8)   Claims 3, 4, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Wiesler, further in view of Suttile et al (U.S. Pat 6,760,640).

Referring to claims 3 and 18, Wiesler teaches the above. However, Wiesler does not explicitly teach that at least one of the entities is a service system interface for communicating between a computer system associated with a customer and a computer system associated with the semiconductor fab, nor that the virtual fab comprises a service system interface for providing an interface between customers and the manufacturing operations.

Suttile teaches a photomask processing system wherein customers have an interface to the semiconductor fab (col. 7 lines 25-46).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a customer interface to the system taught by Wiesler since this would allow a customer to be interfaced via a network to photomask manufacturer's computer and therefore eliminate the need for manual intervention, which would help avoid costly delays (Suttile, col. 6 lines 26-36).

Referring to claim 4, Wiesler teaches the above. However, Wiesler does not explicitly teach that at least one of the entities is a manufacturing executing system used to facilitate production in the semiconductor fab.

Suttile teaches a photomask processing system which may be integrated with an MES system to assist production (col. 11 line 66 through col. 12 line 10).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize an MES system as one of the entities in the system taught by Wiesler since MES systems provide a system user with capabilities such as tracking the manufacturing process and generating billing information (Suttile, col. 12 lines 1-5).

Referring to claim 15, Wiesler teaches the above. However, Wiesler does not explicitly teach that the enterprise mask management system comprises an internal quality control entity for providing control of a predetermined quality of the masks.

Suttile teaches a photomask processing system which includes inspection equipment (col. 9 line 62 through col. 10 line 3).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize an internal quality control entity in the system taught by Wiesler since this would allow the system to check for defects and contaminations in the photomasks (Suttile, col. 10 lines 1-3).

9)   Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiesler, further in view of Nair et al (U.S. Pat 6,366,824).

Referring to claims 7-9, Wiesler teaches the above. However, Wiesler does not explicitly teach that at least one of the entities is a service system interface for communicating between a computer system associated with an external service provider and a computer system associated with the semiconductor fab, nor that the external service provider is a reticle manufacturer or a separate fab.

Nair teaches a method for processing and tracking semiconductors through multiple fabs and manufacturing facilities (col. 1 lines 35-49).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a service system interface for communicating between multiple external fabs and manufacturers in the system taught by Wiesler since it is important to have open

communications since manufacturing information from one facility may be relevant to products

being produced in other facilities and relevant to an overall manufacturing strategy (Nair, col. 1

lines 35-49).

10)   Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiesler, further

in view of Suttile, further in view of Nair.

Referring to claim 20, Wiesler teaches that the plurality of entities include: at least one

entity associated with a first lithographic processing system in the semiconductor fab and at least

one entity associated with a second lithographic processing system in the semiconductor fab

(Paragraph 0015, whereby there may be multiple process stations); and at least one entity

associated with engineering support for the either or both of the first and second lithographic

processing systems (Paragraph 0021). However, Wiesler does not explicitly teach at least one

entity associated with a manufacturer of the lithographic masks and at least one entity associated

with a customer of products being manufactured by the semiconductor fab.

Suttile teaches a photomask processing system wherein customers have an interface to

the semiconductor fab (col. 7 lines 25-46).

Nair teaches a method for processing and tracking semiconductors through multiple

manufacturing facilities (col. 1 lines 35-49).

Therefore, it would have been obvious to one skilled in the art at the time the invention

was made to utilize a customer interface to the system taught by Wiesler since this would allow a

customer to be interfaced via a network to photomask manufacturer's computer and therefore

eliminate the need for manual intervention, which would help avoid costly delays (Suttile, col. 6 lines 26-36).

Therefore, it would also have been obvious to one skilled in the art at the time the invention was made to utilize a service system interface for communicating between multiple manufacturers in the system taught by Wiesler since it is important to have open communications since manufacturing information from one facility may be relevant to products being produced in other facilities and relevant to an overall manufacturing strategy (Nair, col. 1 lines 35-49).

Conclusion

11)   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Charles et al (U.S. PGPUB 2002/0044266) – teaches a mask tracking system.

Campbell et al (U.S. Pat 6,529,789) – teaches a semiconductor routing system.

Robinson et al (U.S. Pat 6,841,660) – teaches a method for process control.

12)   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander J Kosowski whose telephone number is 571-272-3744. The examiner can normally be reached on Monday through Friday, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. In addition, the examiner's RightFAX number is 703-746-8370.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.
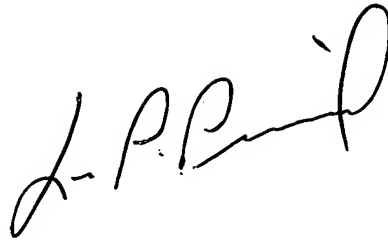
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